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EXAMINER

HICKS, MICHAEL J

ART UNIT PAPER NUMBER

2165

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/811,044

Applicant(s)

WILLIAMS ET AL.

Examiner

Michael J. Hicks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/11/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

1. Claims 1-26 pending.

### *Response to Arguments*

2. Applicant's arguments, see amendment, filed 10/11/2006, with respect to the rejection(s) of claim(s) 1-26 under USC 102(b) in view of Yun have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Amiri et al. ("Highly Concurrent Shared Storage", Proceedings of the International Conference On Distributed Computing Systems, Taipei, April 2000 and referred to hereinafter as Amiri). in view of Yun (As previously referenced).

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Amiri in view of Yun.

As per Claim 1, Amiri discloses an apparatus for protecting data using locks (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges."* The preceding text excerpt clearly indicates that data is protected using locks.) (Page 6, Column 1, Paragraph 3), the apparatus comprising: a lock manager configured to control access via a lock to protected data maintained in native storage independent of the lock manager (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server."* The preceding text excerpt clearly indicates that the lock manager (e.g. lock server) controls access to data in native storage at local hosts.) (Page 6, Column 1, Paragraph 3), wherein the lock manager does not access said protected data from said native storage (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range."* The preceding text excerpt clearly indicates that the lock manager does not access the protected data on a lock grant, but merely acknowledges and either grants or queues the request.) (Page 6, Column 1, Paragraph 3); and a plurality of requesters ((i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range."* The preceding text excerpt clearly indicates that a plurality of requestors (e.g. a BST executing at a host) exists.) (Page 6, Column 1, Paragraph 3); wherein the lock manager is configured to receive lock requests for the lock from each of the plurality of requesters (i.e. *" Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set*

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*of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range."* The preceding text excerpt clearly indicates that the lock manager/server receives a plurality of lock requests from the plurality of requestors.) (Page 6, Column 1, Paragraph 3), and to selectively grant said lock requests which includes communicating grants from the lock manager to the plurality of requestors (i.e. "*Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range. Once conflicting locks have been released, the server grants the request.*" The preceding text excerpt clearly indicates that locks are selectively granted based on availability and lock grant messages are sent to the requestors.) (Page 6, Column 1, Paragraph 3).

Amiri fails to disclose at least one of said communicated grants includes said protected data.

Yun discloses at least one of said communicated grants includes said protected data (i.e. "*Diffs of selected pages are sent with write notices as a lock grant message.*" The preceding text excerpt clearly indicates that the protected data (e.g. diffs) are included with the lock grant message.) (Page 529, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include at least one of said communicated grants includes said protected data with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claim 2, Amiri discloses at least one of said communicated grants does not include said protected data (i.e. *"The lock server queues a hosts request if there is an existing lock on any part of the requested range. Once conflicting locks have been released, the server grants the request."* The preceding text excerpt clearly indicates that locks are selectively granted based on availability and lock grant messages are sent to the requestors. Note as the lock server does not have access to the local files, the first communicated grant for a specific range of protected data would not include the protected data due to the lock manager/server not being able to access it.) (Page 6, Column 1, Paragraph 3).

As per Claim 3, Amiri fails to disclose each of said communicated grants includes an indication of whether or not said protected data is being communicated therewith.

Yun discloses each of said communicated grants includes an indication of whether or not said protected data is being communicated therewith (i.e. *"Diffs of selected pages are sent with write notices as a lock grant message."* The preceding text excerpt clearly indicates the grant message that includes the protected data also includes write notices (e.g. indication of the protected data/diffs).) (Page 529, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include each of said communicated grants includes an indication of whether or not said protected data is being communicated therewith with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claim 4, Amiri fails to disclose each of said communicated grants includes an indication of whether or not said protected data is requested to be sent to the lock manager with a corresponding release of the lock.

Yun discloses each of said communicated grants includes an indication of whether or not said protected data is requested to be sent to the lock manager with a corresponding release of the lock (i.e. *"To make a page up-to-date only diffs are transferred while the whole page is transferred in base HLCRC."*) The preceding text excerpt along with Figure 2 clearly indicates that if no other processes are requesting the lock, that the protected data is written back to storage, rather than being forwarded to a next acquiring process. In order to make this determination and perform this operation, an indication of whether or not to forward the protected data must be included in the grant message.) (Figure 2; Page 530, Column 1, Paragraph 1).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include an indication of whether or not said protected data is requested to be sent to the lock manager with a corresponding release of the lock with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claim 5, Amiri fails to disclose each of said lock requests includes an indication of whether or not the corresponding one of the plurality of requesters will accept said protected data from the lock manager.

Yun discloses each of said lock requests includes an indication of whether or not the corresponding one of the plurality of requesters will accept said protected data from the lock manager (i.e. *"Acquirer sends a lock request with information of expected pages to be used*

*inside a critical section.*" The preceding text excerpt clearly indicates that the request includes an indication of what pages of the protected data will be needed by the requesting process. This will indicate whether the process will accept the current pages of the protected data from the lock manager.) (Page 529, Paragraph 2).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include an indication of whether or not the corresponding one of the plurality of requesters will accept said protected data from the lock manager with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claims 6, 8, and 10, Yun discloses a method performed by a lock manager, computer readable medium, and lock manager controlling access to protected data maintained in native storage independent of the lock manager (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server."* The preceding text excerpt clearly indicates that the lock manager (e.g. lock server) controls access to data in native storage at local hosts.) (Page 6, Column 1, Paragraph 3), wherein the lock manager does not access said protected data from said native storage (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range."* The preceding text excerpt clearly indicates that the lock manager does not access the protected data on a lock grant, but merely acknowledges and either grants or queues the request.) (Page 6, Column 1,

Paragraph 3), the method comprising: receiving a release of a lock for use in controlling access to said protected data (i.e. " *Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range.*"

The preceding text excerpt clearly indicates that the lock manager/server receives a plurality of lock requests from the plurality of requestors.) (Page 6, Column 1, Paragraph 3); identifying a next requester to be granted the lock in response to said receiving the release of the lock (i.e. " *Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range. Once conflicting locks have been released, the server grants the request.*"

The preceding text excerpt clearly indicates that locks are selectively granted based on availability (e.g. if a lock is busy upon receipt of a request a next requestor is identified) and lock grant messages are sent to the requestors.) (Page 6, Column 1, Paragraph 3); and sending the grant message to the next requester (i.e. " *Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range. Once conflicting locks have been released, the server grants the request.*"

The preceding text excerpt clearly indicates that locks are selectively granted based on availability and lock grant messages are sent to the requestors.) (Page 6, Column 1, Paragraph 3).

Amiri fails to disclose that the protected data is included in the release and grant messages and that the protected data is copied from the release to the grant message.

Yun discloses that the protected data is included in the release and grant messages and that the protected data is copied from the release to the grant message (i.e. *"Releaser of that lock decides pages to send diffs based on the information from the lock request. To minimize the effect of diff accumulation problem [8], selection is based on the size of diffs to be sent for a page. If it exceeds a page size, diffs for that page are not sent. Diffs of selected pages are sent with write notices as a lock grant message."* The preceding text excerpt clearly indicates that the protected data (e.g. diffs) are included with the lock grant message. Note as the lock server does not have access to the local files, the first communicated grant for a specific range of protected data would not include the protected data due to the lock manager/server not being able to access it. Note that in order for the protected data/diffs to move from the release to the grant message, it must be copied there.) (Page 529, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include the protected data is included in the release and grant messages and that the protected data is copied from the release to the grant message with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claims 7, 9, and 11, Amiri fails to disclose the grant message includes an indication of that said protected data is requested to be sent to the lock manager in a release message corresponding to the grant message if another requester is waiting for the lock, else an indication that said protected data is not requested to be sent to the lock manager in the release message.

Yun discloses the grant message includes an indication of that said protected data is requested to be sent to the lock manager in a release message corresponding to

the grant message if another requester is waiting for the lock, else an indication that said protected data is not requested to be sent to the lock manager in the release message (i.e. The Figure 2 indicates that if another process is requesting the lock, the protected data is sent with the release and grant messages, but if no other process is requesting the lock then the data is stored (e.g. not sent to the lock manager). In order to produce this behavior, an indication of whether or not to transmit the protected data back to the lock manager must be present.) (Figure 2).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include the grant message includes an indication of that said protected data is requested to be sent to the lock manager in a release message corresponding to the grant message if another requester is waiting for the lock, else an indication that said protected data is not requested to be sent to the lock manager in the release message with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claims 12, 17, and 22, Yun discloses a method performed by a lock manager, computer readable medium, and lock manager controlling access to protected data maintained in native storage independent of the lock manager (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a devwrite) or a shared (for a devread) lock on a set of target ranges by sending a single lock message to the lock server."* The preceding text excerpt clearly indicates that the lock manager (e.g. lock server) controls access to data in native storage at local hosts.) (Page 6, Column 1, Paragraph 3), wherein the lock manager does not access said protected data from said

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native storage (i.e. *"Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range."* The preceding text excerpt clearly indicates that the lock manager does not access the protected data on a lock grant, but merely acknowledges and either grants or queues the request.) (Page 6, Column 1, Paragraph 3), the method comprising: receiving locking requests for a lock controlling access to said protected data from a first requester and a second requester (i.e. *" Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range. Once conflicting locks have been released, the server grants the request."* The preceding text excerpt clearly indicates that requests for the locks are received by multiple requesters (e.g. a first and second requester.) (Page 6, Column 1, Paragraph 3); sending a first grant message to the first requester, the first grant message not including said protected data (i.e. *" Under this scheme, a centralized lock server provides locking on low-level storage block ranges. A BST executing at a host acquires an exclusive (for a **devwrite**) or a shared (for a **devread**) lock on a set of target ranges by sending a single lock message to the lock server. The lock server queues a hosts request if there is an existing lock on any part of the requested range. Once conflicting locks have been released, the server grants the request."* The preceding text excerpt clearly indicates that locks are selectively granted based on availability and lock grant messages are sent to the requestors. Note as the lock server does not have access to the local files, the first communicated grant for a specific range of protected data would not include the protected data due to the lock manager/server not being able to access it.) (Page 6, Column 1, Paragraph 3) and receiving a first release message corresponding to the first grant message for the lock

from the first requester (i.e. *"When all I/O requests in the BST complete, the host sends an unlock message to the lock server."* The preceding text excerpt clearly indicates that lock release (e.g. unlock) messages are received from the lock holders which correspond to the lock grant messages.) (Page 6, Column 1, Paragraph 3).

Amiri fails to disclose in response to identifying one or more requesters is waiting for the lock after the first requester, including an indication to return said protected data in the first grant message and the first release message including said protected data.

Yun Discloses disclose in response to identifying one or more requesters is waiting for the lock after the first requester, including an indication to return said protected data in the first grant message (i.e. *"Releaser of that lock decides pages to send diffs based on the information from the lock request. To minimize the effect of diff accumulation problem [8], selection is based on the size of diffs to be sent for a page. If it exceeds a page size, diffs for that page are not sent. Diffs of selected pages are sent with write notices as a lock grant message."* The preceding text excerpt clearly indicates that if the lock request information is received, indicating another process is requesting the lock, that the protected data (e.g. diffs) will be returned. This indicates that an indication to return the protected data was also transmitted.) (Page 529, Paragraph 3) and the first release message including said protected data (i.e. *"Releaser of that lock decides pages to send diffs based on the information from the lock request. To minimize the effect of diff accumulation problem [8], selection is based on the size of diffs to be sent for a page. If it exceeds a page size, diffs for that page are not sent. Diffs of selected pages are sent with write notices as a lock grant message."* The preceding text excerpt clearly indicates that the release message includes the protected data (e.g. diffs).) (Page 529, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include in

response to identifying one or more requesters is waiting for the lock after the first requester, including an indication to return said protected data in the first grant message and the first release message including said protected data with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claims 13, 18, and 23, Amiri fails to disclose sending a second grant message to the second requester, the second grant message including said protected data, and an indication of whether or not to send said protected data in a second release message.

Yun discloses sending a second grant message to the second requester, the second grant message including said protected data (i.e. *"Releaser of that lock decides pages to send diffs based on the information from the lock request. To minimize the effect of diff accumulation problem [8], selection is based on the size of diffs to be sent for a page. If it exceeds a page size, diffs for that page are not sent. Diffs of selected pages are sent with write notices as a lock grant message."* The preceding text excerpt clearly indicates that the protected data is sent in the second grant message.) (Page 529, Paragraph 3), and an indication of whether or not to send said protected data in a second release message (i.e. *"Acquirer sends a lock request with information of expected pages to be used inside a critical section....Releaser sends diffs for expected pages to be used by acquirer."* The preceding text excerpt clearly indicates that an indication of the next requestor, if one exists, is sent. This acts as an indication to send the protected data along with the release message.) (Page 529, Paragraph 2; Page 528, Column 2, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include the grant message includes sending a second grant message to the second requester, the second grant message including said protected data, and an indication of whether or not to send said protected data in a second release message with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claims 14, 19, and 24, Amiri fails to disclose the second grant message includes an indication to send said protected data in the second release message in response to identifying another requestor is waiting for access to the lock.

Yun discloses the second grant message includes an indication to send said protected data in the second release message in response to identifying another requestor is waiting for access to the lock (i.e. *"Acquirer sends a lock request with information of expected pages to be used inside a critical section...Releaser sends diffs for expected pages to be used by acquirer."* The preceding text excerpt along with Figure 2 clearly indicates that if another process is waiting for access to the lock, it is indicated in the grant message, and the protected data (e.g. diffs) are sent with the release message. This behavior necessitates that an indication must be made to of whether or not to send the protected data back in the release message based on the number of requestors waiting for the lock.) (Figure 2; Page 529, Paragraph 2; Page 528, Column 2, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include the second grant message includes an indication to send said protected data in the second

release message in response to identifying another requestor is waiting for access to the lock with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

As per Claims 15, 20, and 25, Amiri fails to disclose the second grant message includes an indication not to send said protected data in the second release message in response to identifying another requestor is not waiting for access to the lock.

Yun discloses the second grant message includes an indication not to send said protected data in the second release message in response to identifying another requestor is not waiting for access to the lock (i.e. *"Acquirer sends a lock request with information of expected pages to be used inside a critical section...Releaser sends diffs for expected pages to be used by acquirer."* The preceding text excerpt along with Figure 2 clearly indicates that if another process is not waiting for the lock, another lock request will not be present in the grant message, and the protected data will be stored instead of sent with the release message. This behavior necessitates that an indication must be made to of whether or not to send the protected data back in the release message based on the number of requestors waiting for the lock.) (Figure 2; Page 529, Paragraph 2; Page 528, Column 2, Paragraph 3).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include the second grant message includes an indication not to send said protected data in the second release message in response to identifying another requestor is not waiting for access to the lock with the motivation of reducing the average waiting time and amount

of messages in locking systems (Yun, Abstract).

As per Claims 16, 21, and 26, Amiri fail to disclose the second grant message includes an indication not to send said protected data in the second release message; and the method comprises in response to said indication not to send said protected data in the second release message, the second requester storing said protected data and not including said protected data in the second release message.

Yun discloses the second grant message includes an indication not to send said protected data in the second release message (i.e. *"Acquirer sends a lock request with information of expected pages to be used inside a critical section...Releaser sends diffs for expected pages to be used by acquirer."* The preceding text excerpt along with Figure 2 clearly indicates that if another process is not waiting for the lock, the protected data will not be present in the grant message. This behavior necessitates that an indication must be made to of whether or not to send the protected data back in the release message.) (Figure 2; Page 529, Paragraph 2; Page 528, Column 2, Paragraph 3); and the method comprises in response to said indication not to send said protected data in the second release message, the second requester storing said protected data and not including said protected data in the second release message (i.e. Figure 2 clearly indicates that if no other process is requesting the lock on the protected data, the protected data is stored, and it is not included in the release message. This behavior necessitates that an indication must be made to of whether or not to send the protected data back in the release message based on the number of requestors waiting for the lock.) (Figure 2).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Amiri with the teachings of Yun to include the second grant message includes an indication not to send said protected data in the

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second release message; and the method comprises in response to said indication not to send said protected data in the second release message, the second requester storing said protected data and not including said protected data in the second release message with the motivation of reducing the average waiting time and amount of messages in locking systems (Yun, Abstract).

### ***Points of Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Hicks whose telephone number is (571) 272-2670. The examiner can normally be reached on Monday - Friday 10:00a - 7:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

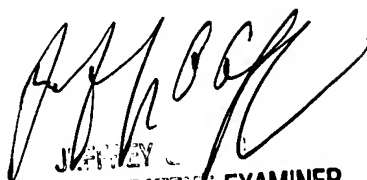
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